

ODONATA COLLECTED BY MR. J. D. BRADLEY ON GUADALCANAL ISLAND, 1953-54

By D. E. KIMMINS

THE Odonata dealt with in this paper were collected by Mr. Bradley during stops on Guadalcanal on his way to and from Rennell Island. The Odonata of Guadalcanal are better known than the Trichoptera, and Lieftinck (1949) lists twenty-eight species. Mr. Bradley collected fourteen species of which six were additions to those listed by Lieftinck, these six including at least three new species and two new genera. There is a high proportion of species endemic to the Solomon Islands, no fewer than fourteen of the total of thirty-four being restricted to the Solomons.

The types of the new species are in the British Museum (Natural History).

ODONATA

ZYGOPTERA

Family LIBELLAGINIDAE

Rhinocypha liberata Lieftinck

Tapenanje, 10-23.xii.1953, 22 ♂, 11 ♀.

The present examples differ slightly from Lieftinck's description and from Solomon Islands specimens (ex McLachlan collection), determined by myself as *R. liberata*, but I do not consider the differences to justify the erection of a new subspecies. The specimens are a little larger and the brown apices of the wings appear to be a little more extensive. In many examples the infuscation of the fore wing extends almost completely to the apical margin, even in teneral specimens, and in none is the paler space distad of the pterostigma as distinct as in Lieftinck's description. In teneral examples the apical half of the pterostigma is pale cream.

♀. Humeral stripe a little less reduced than in ♂. Abdomen black, with a fine, yellowish, median carina. Sides of the segments marked with deep yellow: segment 1, one large spot; segments 2-7 with two spots, the anterior the larger, the spots becoming progressively reduced towards apex of abdomen; segment 8 with only one basal spot. Membrane of wings pale yellowish, hind wing with a brownish apical patch, varying in size and intensity in individuals up to nearly the apical third, paler along the costal margin. Extreme apex of wing narrowly opaque whitish. Fore wing sometimes with very indistinct brownish shading in apical third but not reaching extreme apex, which is also very narrowly opaque whitish. Pterostigma dark brown, apical half deep cream to reddish brown.

Family PROTONEURIDAE

Notoneura salomonis (Selys)

Tapenanje, 10-23.xii.1953, 26 ♂, 15 ♀.

DISTRIBUTION. Solomon Islands, New Britain, New Guinea.

Family PLATYCNEMIDIDAE

LIEFTINCKIA gen. nov.

(Text-fig. 1)

♂. Head large, eyes conspicuous and globular. Mouth parts and clypeus projecting, about half as wide as distance between eyes. Median excision of labium U-shaped, about twice as deep as wide. Antenna with basal segment short, third about twice as long as first and second together. Prothorax without projections. Synthorax rather short. Legs slender, not unusually long, hind femur extending to apex of first abdominal segment. Tibiae not dilated; tarsi of moderate length, claws with a strong, subapical tooth.

Wings (Text-fig. 1A) elongate, hyaline, distinctly petiolated, petiolation ceasing at level of first antenodal, distad of *Ac*. Apices of both wings with a finely undulated margin. Nodus situated at a little more than one-fourth the distance between base and the distal margin of the pterostigma (5 : 18) in fore wing and about one-third (7 : 22) in hind wing. Pterostigma large, irregularly lozenge-shaped, costal margin slightly concave, distal margin angled. Two rows of cells between *C* and *R*₁ beyond the stigma. Marginal course of *M*₄ and *Cu*₂ zigzag. Origins of *Rs* and *M*₃ close together, *M*₃ at or slightly before subnodus, *Rs* usually not more than half a cell beyond. Quadrilateral about three times as long as broad, lower basal angle acute. *Ac* situated distinctly basad of first antenodal cross-vein, *Ab* extending back to level of first antenodal in fore wing and to mid-way between first and second antenodal in hind wing.

Abdomen moderately slender. Posterior tergal margin of tenth segment somewhat elevated and with a triangular, median impression. Stalk of penis without lateral bristles. Distal segment arching backwards, rather narrow but dilating towards apex, which is widely excised, angles produced in spatulate lobes. Lamina interna slender, acute (Text-figs. 1D, E).

Superior anal appendages short, triangular, with a downwardly directed inner branch. Inferiors rather longer, narrowed to a finger apically.

♀. Much as in ♂. Posterior lobe of prothorax with the sides produced in deflexed rounded lobes. Between them the anterior margin of the mesepisternum is raised in a transverse, rounded process. Apex of abdomen somewhat damaged, superior anal appendages short and conical. Valves short, stout, slightly curved and tapering to blunt apices.

Type-species, *Lieftinckia salomonis* sp. n.

I am in some doubt as to the correct place of this genus within the Platynemididae. The ♂ anal appendages recall those of *Platynemis*, the superiors being shorter than the inferiors, with an internal, downwardly directed branch, but the tibiae show no sign of dilatation. *Ac* is situated relatively nearer to the base of the wing than in *Tatocnemis*, being basad of the first antenodal. The anal bridge does not reach *Ac*

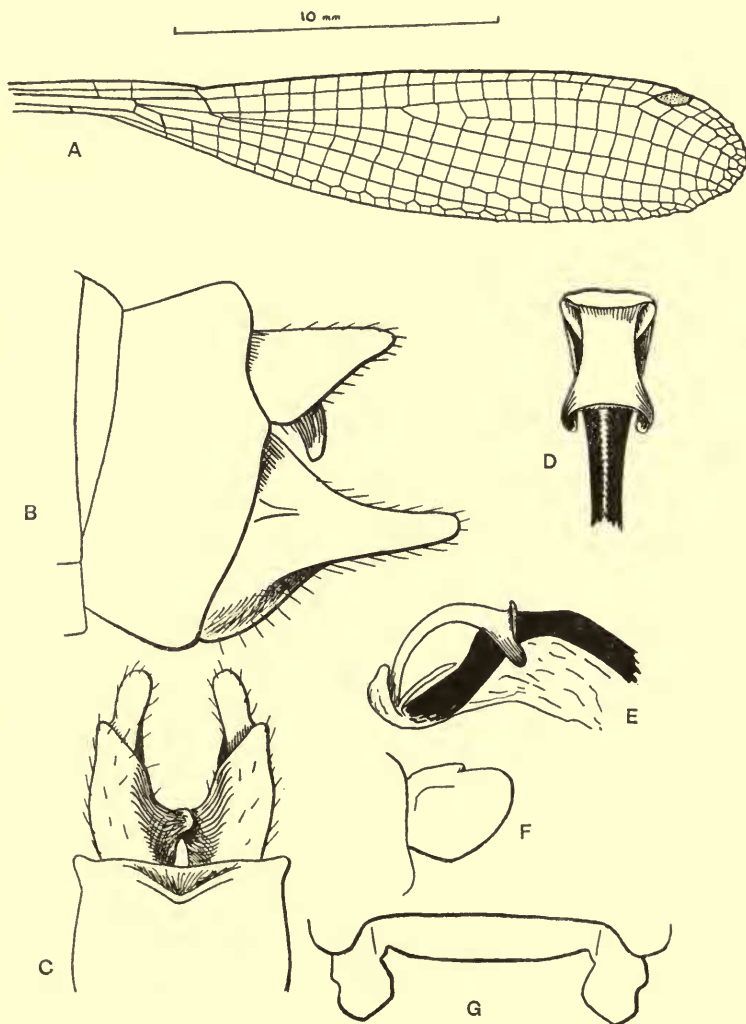


FIG. 1. *Lieftinckia salomonis* gen. et sp. n. ♂, ♀. (A), ♂ fore wing; (B), ♂ anal appendages, left lateral; (C), ♂ anal appendages, dorsal; (D), ♂ penis, ventral; (E), ♂ penis, left lateral; (F), ♀ posterior lobe of prothorax, left lateral; (G), ♀ posterior lobe of prothorax, dorsal.

but runs into the wing margin at the level of the first antenodal. The form of the posterior lobe of the prothorax in the female and the inflation of the anterior margin of the synthorax also have their counterparts in *Platycnemis*. The penis and the venation (apart from the position of *Ac*) resemble *Idiocnemis*, but the extreme basal position of *Ac* and the presence of two rows of cells between *C* and *R*₁ beyond the stigma will distinguish *Lieftinckia* from either *Platycnemis* or *Idiocnemis*.

It gives me much pleasure to name this interesting genus after Dr. M. A. Lieftinck, now at Leiden Museum, who has done so much to extend our knowledge of the Odonata of Papua, Indonesia and the associated islands.

Lieftinckia salomonis sp. n.

(Text-fig. 1)

Tapenanje, 10-23.xii.1953, 2 ♂, 1 ♀.

Specimens possibly rather teneral. General appearance cream, dorsum of synthorax dark brown, abdomen with paler brown markings.

♂. Head with labrum, bases of mandibles, clypeus, frons and vertex cream, occiput fuscous. Antenna with flagellum and apical half of second segment fuscous. Labium yellowish. Eyes dark brown.

Pronotum dark fuscous above, sides and venter creamy yellow. Posterior lobe of pronotum simple, margin broadly rounded. Synthorax with dorsum dark fuscous, which colour slightly overlaps the humeral suture, and a faint brownish streak along the posterior margin of mesepimerum, otherwise creamy yellow. Coxae, trochanters and femora yellowish, apices of the latter narrowly fuscous. Tibiae and tarsi dark brown.

Wings hyaline, veins dark brown, venation as in Text-fig. 1A and in generic description. Pterostigma pale brownish, narrowly bordered inside margins with cream.

Abdominal segments 1-6 cream, each with an apical annule of brownish, narrow on segment 1 and gradually increasing in width to segment 6. Segments 7-10 pale brownish (somewhat discoloured), anal appendages pale brownish.

Superior anal appendage (Text-figs. 1B, C) about as long as tenth segment, from the side triangular and with an acute apex. From above it is also acutely triangular, but the inner margin towards the base is produced downwards in a short, flattened finger, the inner upper margin thus appearing sinuate. Inferior appendage about one and a third times as long as superior, broad basally, tapering to a narrow, blunt finger, slightly incurved.

♀. Head as in ♂. Prothorax coloured as in ♂. Posterior lobe (Text-figs. 1F, G) transverse, with its lateral margins bent sharply downwards and produced backwards in rounded lobes, to form a wide, shallow, somewhat rectangular excision. Synthorax with its anterior margin inflated in a transverse, rounded lobe, its posterior margin feebly excised. Markings of synthorax and legs as in ♂. Wings much as in ♂. Abdomen cream, ringed with brownish as in ♂ on segments 1-6, coloration of remaining segments pale, obscure. Genitalia as in generic description.

Length of abdomen + appendages, ♂, 34–35 mm., ♀, 32 mm.; hind wing, ♂, 23 mm., ♀, 23 mm.

Lieftinckia ? sp.

Tapenanje, 10–23.xii.1953, 1 ♀.

This rather teneral and crushed specimen is referred to *Lieftinckia* with some doubt. The position of the anal crossing and anal bridge is typical, but M_3 arises at the subnodus and R_s half to one cell beyond. The cells beyond the stigma are in one row only. The posterior lobe of the prothorax is not excised apically and the femora are more shaded with brownish. Tergites 3–7 of the abdomen have a median brownish band in addition to the apical one.

Family COENAGRIIDAE

Pseudagrion incisurum Lieftinck

Tapenanje, 10–23.xii.1953, 9 ♂, 1 ♀.

DISTRIBUTION. Guadalcanal.

Teinobasis bradleyi sp. n.

(Text-fig. 2)

Tapenanje, 10–23.xii.1953, 2 ♂ (1 incomplete).

♂. Labium and lower mouth parts very pale blue, mandible bases and genae bluish green. Labrum and clypeus black, shining, the latter with three small, blue-green spots along the anterior margin, postclypeus black, with a wide, transverse, blue-green stripe from side to side. Frons, vertex and occiput dull black, with a faint greenish sheen. Antennal bases blue-green in front, segments piceous.

Prothorax dull black above, sides light bluish, pruinulent. Posterior lobe simple, flattened, its distal margin evenly and shallowly rounded.

Synthorax (Text-fig. 2A) as far as the first lateral suture (and in the upper fifth to the second lateral suture) black, between the humeral sutures with a metallic greenish sheen. Mesepimerum with a small blue spot at its upper angle, adjoining the humeral suture. Remainder of synthorax blue, slightly pruinulent beneath. Coxae pale bluish, femora piceous above, pale bluish beneath, tibiae and tarsi reddish piceous. Spines black. Claws without inferior sub-apical tooth.

Wings hyaline, venation black. Apical margin very slightly and widely undulated or excised between Cu_1 and M_3 , M_3 and M_2 . Origin of M_3 slightly before, and R_s at, subnodus. Fifteen to sixteen postnodal cross-veins in fore wing, 14 in hind. Three postquadrangular antenodal cells. Cu_2 long, terminating at level of tenth postnodal. Pterostigma piceous, moderately oblique, about twice as long as high.

Abdomen slender, black above, segment 1 with a narrow, transverse, blue apical streak, and a rounded blue spot filling most of side. Segment 2 with an elongate blue patch on each side. Remaining segments with lower, lateral margins bluish or yellowish. Tenth segment with the median impressed area triangular. Anal

appendages as in Text-figs. 1B, C, superiors piceous, inferiors pale bluish at base, piceous apically.

♀ unknown.

Length of abdomen + appendages, ♂, 39 mm. ; hind wing, 26 mm.

In form of genitalia, *T. bradleyi* forms one of a group of species in which the superior anal appendages are tapered and slightly incurved apically, extending beyond the

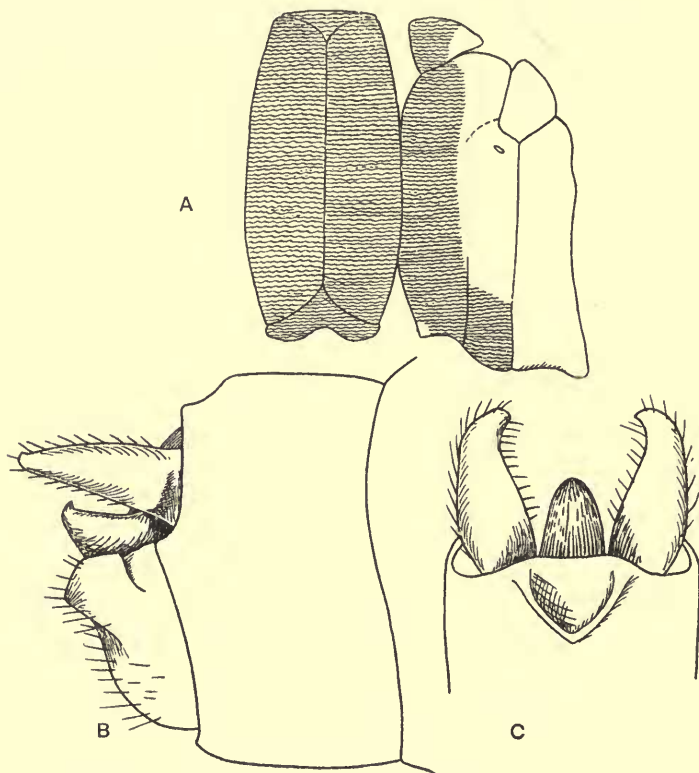


FIG. 2. *Teinobasis bradleyi* sp. n. ♂. (A), diagram of thoracic pattern ; (B), anal appendages, right lateral ; (C), anal appendages, dorsal.

inferiors. It most nearly approaches *T. metallica* Foerster, but the superiors are less abruptly tapered and the inferiors have the apex not acute but blunt and obtuse-angled. The thoracic colouring is less metallic and extends dorsally to the second lateral suture. The slight undulation of the wing apices recalls that in the genus *Leptocnemis*, but the appendages are rather different.

Agriocnemis salomonis Lieftinck

Honiara, 5-9.x.1953, 1 ♂.

DISTRIBUTION. Solomon Islands.

ANISOPTERA

Family CORDULIIDAE

GUADALCA gen. nov.

(Text-figs. 3, 4)

Eyes strongly globular, broadly contiguous. Frons moderately produced, not as broad as thorax (about half the width of the head and eyes). ♂ with a carina on the flexor surface of all tibiae on anterior and median legs occupying about the apical fourth, on the posterior extending almost the whole length of the tibia. Ventral surfaces of median and posterior femora armed with numerous short,

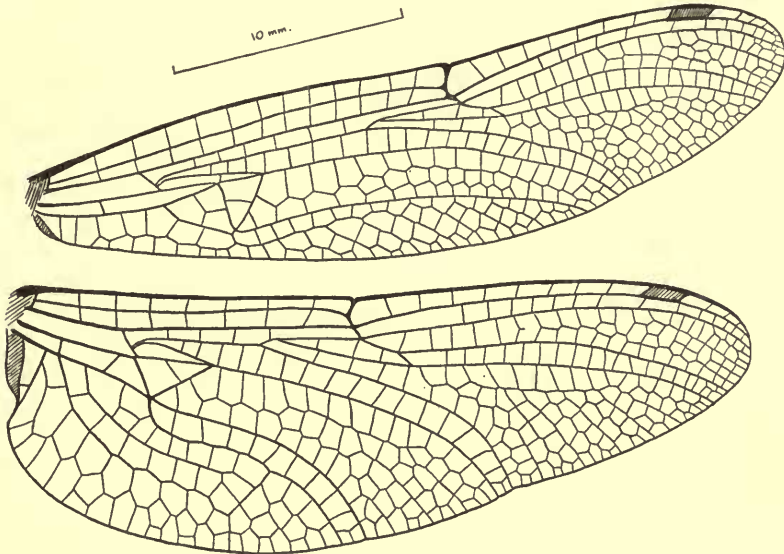


FIG. 3. *Guadalca insularis* gen. et sp. n. ♂ wings.

black teeth. Wings (Text-fig. 3) hyaline or faintly brownish, ♂ with a pale, golden-yellow area at base of hind wing, not extending beyond the basal cubital cross-vein, and with a trace of this colour at extreme base of fore wing. ♀ with veins lightly margined with brownish. Triangles in both wings divided, subtriangle in hind wing present. Antenodal cross-veins 10–12 in fore wing, 7–8 in hind wing. Arculus at about the level of the second antenodal in both wings, oblique, branches separate or arising at a point, in the posterior half of arculus. Nodus in fore wing situated distad from middle of wing. Stigma in both wings short, rhomboidal, about twice as long as wide. Anal loop rather feebly developed, three cells wide at apex; two rows of cells between 2A and margin of hind wing in ♂, three rows in ♀.

Type-species, *Guadalca insularis* sp. n.

This genus appears most closely related to *Antipodochlora* Fraser (New Zealand), from which it differs in its narrower frons, the greater number of antenodal cross-

veins in both wings, the more distally situated nodus of the fore wing and the less well-developed anal loop of the hind wing. *Anticordulia* Needham and Bullock (Chili) is also closely related but differs in the more robust body, longer legs, nodus of fore wing about mid-way, fewer antenodals, and in the hind wing generally no second cubital cross-vein (subtriangle absent) and three rows of cells between 2A and the wing margin. It should be remembered that in the group of Corduline genera to which these belong, the second cubital cross-vein in the hind wing tends to be unstable and too much reliance should not be placed in it as a generic character in single specimens.

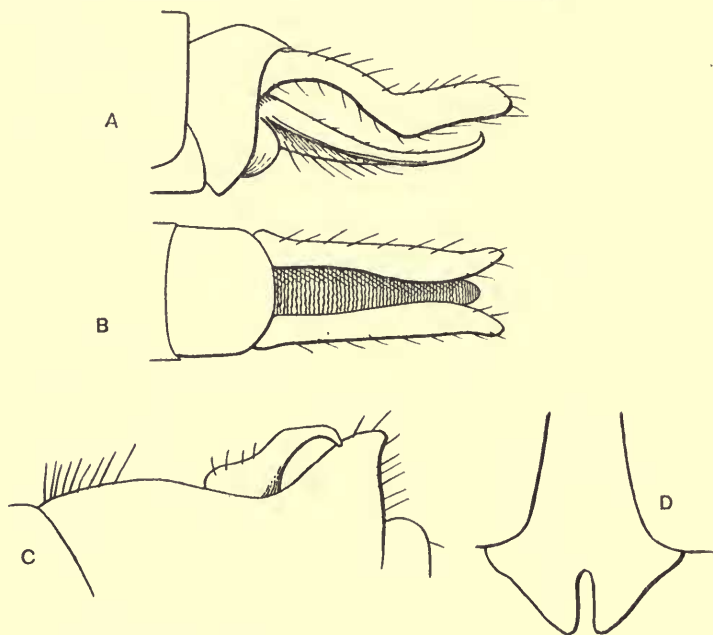


FIG. 4. *Guadalca insularis* gen. et sp. n. ♂, ♀. (A), ♂ anal appendages, left lateral; (B), ♂ anal appendages, dorsal; (C), ♂ genitalia, second segment, right lateral; (D), ♀ vulvar lamina, ventral.

***Guadalca insularis* sp. n.**

(Text-figs. 3-4)

Tapenanje, 10-23.xii.1953, 9 ♂, 1 ♀.

♂. Head with vertex black with a greenish lustre. Frons with shining, metallic greenish-black triangles, sides and lower margin dull yellowish. Clypeus dull yellowish, labrum piceous, with a small orange spot. Labium dull yellowish.

Thorax metallic greenish, with a coppery sheen, a narrow brownish stripe on each side of and adjoining the median carina. Legs not unusually long, reddish-brown, with black spines and teeth: tarsi dark brown.

Wings (Text-fig. 3) hyaline or slightly smoky yellowish, and with a small patch of pale golden-yellow at the base of the hind wing, not extending beyond the basal cubital cross-vein. Venation black, stigma reddish-brown.

Abdomen slender (including appendages a little shorter than hind wing), slightly constricted at the third segment, then gradually dilating again to the seventh segment. Segment 1 yellowish-brown, darker above; 2 yellowish-brown, with a dorsal patch of greenish-black. Remaining segments piceous above, with a purplish metallic sheen; 3-9 with a narrow, dull orange apical margin, apical lateral margins dull orange, which colour also appears to a lesser degree in the basal lateral angles of segments 4-7. Segment 10 blackish. Ventral surface of abdomen dull yellowish with darker margins.

Genitalia of the second segment (Text-fig. 4c) with the anterior lamina small, transverse, not projecting beyond the margins of the segment in side view, dull yellowish-brown. Hamules prominent, broad at base, tapering to slender, moderately hooked apices, about as long as the genital lobes. The latter are stout, triangular, with rounded apices. Superior anal appendages (Text-fig. 4A, B) black, more than twice as long as tenth segment, slender, cylindrical from above, with divergent apices. From the side they are slightly down-curved to just beyond the middle, then slightly angled upwards and straight. Inferior appendix yellowish, almost as long as superiors, in dorsal view forming a narrow triangle with upturned apex.

♀. Coloured much as in male but rather darker. Venation bordered with yellowish-brown. Orange markings on abdomen less extensive. Anal appendages blackish. Vulvar lamina (Text-fig. 4D) triangular, with a narrow, U-shaped, median excision.

Abdomen with appendages, ♂, 32-34 mm., ♀, 33.5 mm.

Length of hind wing, ♂, 30-32 mm., ♀, 35 mm.

Family LIBELLULIDAE

Tapeinothemis boharti Lieftinck.

(Text-fig. 5)

Tapenanje, 10-23.xii.1953, 13 ♂, 13 ♀.

This species was described from a single female from Florida Island and I am therefore giving a supplementary description of the points in which the male differs. (Adult.) Centre of dorsum of synthorax with white pruinescence. Abdominal segments 2-8 densely coated with white pruinescence above. In less mature males, the dorsum of segments 2-7 is shining metallic blue-black, only partly obscured with pruinescence, 8-10 dull black. Segment 1 is shining black above, with a lemon-yellow triangle in each apical angle. In side view, segments 2-3 are lemon-yellow towards the bases. Genitalia of second segment and appendages as figured. One male has been marked as *allotype*.

DISTRIBUTION. Solomon Islands.

Agrionoptera insignis insularis Kirby

Tapenanje, 10-23.xii.1953, 1 ♂.

Honiara, 5-9.x.1953, 1 ♀.

DISTRIBUTION. Solomon Islands.

Protorthemis woodfordi (Kirby)

Honiara, 5-9.x.1953, 1 ♂.

Tapenanje, 10-23.xii.1953, 6 ♂, 1 ♀.

DISTRIBUTION. Solomon Islands.

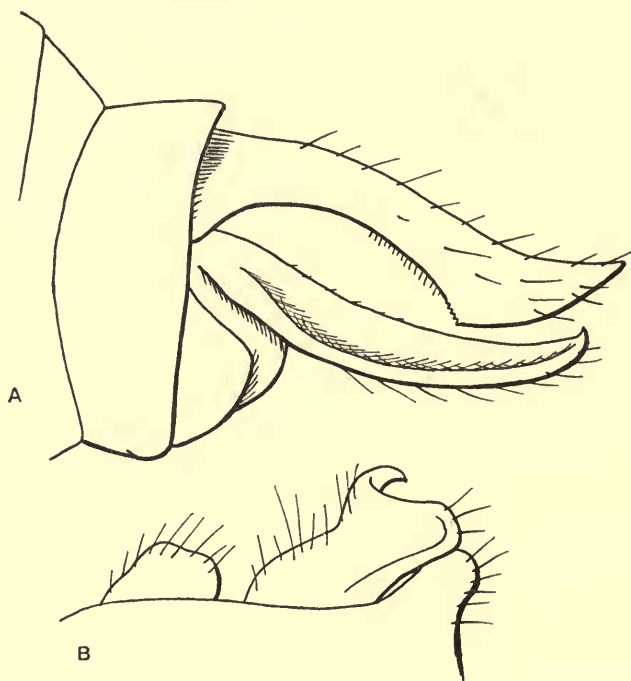


FIG. 5. *Tapeinothemis boharti* Lieftinck ♂. (A), anal appendages, left lateral ; (B), genitalia, second segment, right lateral.

Orthetrum villosovittatum bismarckianum Ris

Honiara, 5-9.x.1953, 1 ♀.

Tapenanje, 10-23.xii.1953, 5 ♂, 3 ♀.

DISTRIBUTION. Bismarck Archipelago, Solomon Islands, Amboina.

Diplacodes trivialis (Rambur)

Honiara, 10-14, 19-29.ix.1953, 4 ♂, 1 ♀.

DISTRIBUTION. Seychelles, Asia, Philippine Islands, East Indies, Celebes, New Hebrides, Solomon Islands, Bismarck Archipelago, Australia, Fiji.

Neurothemis stigmatizans brahmia (Guerin)

Honiara, 5-9.x.1953, 5 ♂, 3 ♀.

Tapenanje, 10-23.xii.1953, 17 ♂, 7 ♀.

DISTRIBUTION. New Guinea, Aru Islands, Bismarck Archipelago, Solomon Islands, New Hebrides, Union Islands.

